

REMARKS

This responds to the Office Action dated March 29, 2006. Claims 1-9 and 11-22 are amended. No claims are canceled or added. As a result, claims 1-22 remain pending in this patent application.

Objection to the Title

The title was objected due to an informality. Applicant has amended the title as suggested by the Examiner. Accordingly, Applicant respectfully requests withdrawal of this objection.

Objection to the Claims

Claim 3 was objected to due to an informality. Applicant has amended claim 3 to overcome this objection. Accordingly, Applicant respectfully requests withdrawal of this objection.

§112 Rejection of the Claims

Claim 7 was rejected under 35 U.S.C. § 112, second paragraph, for indefiniteness for improper antecedent basis. Applicant has amended claim 7 to depend from claim 6, rather than claim 1, thereby clarifying. Accordingly, Applicant respectfully requests withdrawal of this rejection.

§102 Rejection of the Claims

Claims 1, 2 and 4-10 were rejected under 35 U.S.C. § 102(b) as being anticipated by Mower (U.S. Patent No. 6,178,351). Applicant respectfully traverses.

Concerning claims 1-2:

Applicant cannot find in Mower any disclosure of sensing atrial fibrillation, termination of the atrial fibrillation, and then placing the system into an atrial fibrillation suppression mode that delivers multiple pacing pulses to the target atrium during the same atrial contraction, as presently recited or incorporated in claims 1-2. Instead, Mower is clearly directed toward terminating atrial fibrillation using anti-tachyarrhythmia pacing. However, after Mower

terminates the atrial fibrillation, Mower then ceases the anti-tachyarrhythmia pacing. *See* Mower at col. 9, lines 44-58. By contrast, the present patent application describes an example of a “Mode III” in which multiple pulses are then provided to the atrium in a manner that preempts—and thereby helps avoid—the onset of another atrial fibrillation. For example, as the present patent application explains:

In yet a further embodiment of the method (Mode III) of the present invention, there is provided a method of both pacing the atrium and suppressing the initiation of atrial fibrillation. The method comprises: providing at least two electrodes attached to a target atrium for independently delivering stimulus through the at least two electrodes; sensing cardiac activity using a sense electrode to determine when the atrium should be paced; delivering a time sequence of stimulus pulses through each of the at least two electrodes to contract the atrium. A pacing pulse can be applied through the first electrode to initiate an atrial contraction and then concurrently or in sequence, a stimulus may be applied through the second electrode, then through the third electrode, etc. This will result in contracting the atrium faster than its native contraction and forestalling the onset of atrial fibrillation in the atrium.

(Published Patent Application 2004/0230231 ¶ 15.) Moreover, the present patent application goes on to state:

In still a third mode (Mode III) of operation, the system may pace (initiate contraction of) an atrium using stimulation from at least two electrodes placed on the outer surface or inner wall of the atrium using a single lead with a multi-electrode array as shown in FIG. 3D. Operating, for example, in a monopolar configuration where the IPG housing functions as an indifferent electrode, a precise timed, sequence of stimulation through each electrode is used to control the rate of contraction throughout the target atrium. The sequential pacing through the electrodes can be timed to preempt the native (usually too slow) speed of an atrial contraction while at the same time suppressing the onset of atrial fibrillation. Atrial fibrillation is suppressed because the effect of the sequential pacing is to force more rapid contraction of the entire atrium and shorten the atrial contraction cycle, thereby reducing the chance for circus motions.

(Published Patent Application 2004/0230231 ¶ 59.) The present patent application further goes on to state:

Mode III actively contracts (paces) an atrium in a timed sequence, which shortens the time to complete an atrial contraction and thereby reduces the opportunity for conduction circus motions.

(Published Patent Application 2004/0230231 ¶ 66.) Because Mower apparently fails to disclose such suppression of the onset of an atrial fibrillation, but instead merely describes terminating an already-existing atrial fibrillation, Applicant respectfully submits that all elements presently recited or incorporated in claims 1-2 are apparently not present in Mower and, therefore, there is presently no *prima facie* case of anticipation of claims 1-2 by Mower. Accordingly, Applicant respectfully requests withdrawal of this basis of rejection of these claims.

Concerning claim 4:

In addition to the reasons discussed above with respect to its base claim 1, Applicant cannot find in the cited portions of Mower any disclosure of following cessation of atrial fibrillation with an atrial fibrillation suppression mode that delivers multiple pulses timed to induce a faster-than-native atrial contraction to prevent onset of atrial tachyarrhythmia, as presently recited in claim 4. Instead, Mower apparently merely relates to terminating an atrial fibrillation, after which Mower's pacing is terminated, as discussed above. Accordingly, because all elements presently recited in claim 4 are apparently not present in Mower, Applicant respectfully submits that there is presently no *prima facie* case of anticipation of claim 4. Therefore, Applicant respectfully requests withdrawal of this basis of rejection of claim 4.

Concerning claim 5:

In addition to the reasons discussed above with respect to its base claim 1, Applicant cannot find in the cited portions of Mower any disclosure of following cessation of atrial fibrillation with an atrial fibrillation suppression mode that delivers multiple pulses timed to suppress circus conduction in the target atrium to prevent onset of atrial fibrillation without causing contraction of the target atrium, as presently recited in claim 5. (*See, e.g.*, U.S. Patent Publication 2004/0230231 ¶ 58.) Instead, Mower apparently merely relates to terminating an atrial fibrillation, after which Mower's pacing is terminated, as discussed above. Accordingly, because all elements presently recited in claim 5 are apparently not present in Mower, Applicant respectfully submits that there is presently no *prima facie* case of anticipation of claim 5. Therefore, Applicant respectfully requests withdrawal of this basis of rejection of claim 5.

Concerning claims 6-7:

In addition to the reasons discussed above with respect to their base claim 1, Applicant cannot find in the cited portions of Mower any disclosure of a stimulus generator that can deliver

a stimulus that is a train of pulses through at least one electrode, the train of pulses configured to suppress onset of atrial fibrillation, as presently recited or incorporated in claims 6-7. Instead, Mower apparently merely relates to terminating an atrial fibrillation, after which Mower's pacing is terminated, as discussed above. Accordingly, because all elements presently recited or incorporated in claims 6-7 are apparently not present in Mower, Applicant respectfully submits that there is presently no *prima facie* case of anticipation of claims 6-7. Therefore, Applicant respectfully requests withdrawal of this basis of rejection of claims 6-7.

Concerning claims 8-10:

Applicant cannot find in the cited portions of Mower any disclosure of a stimulus generator that can deliver timed stimulation through each of the two electrodes to suppress the onset of atrial fibrillation, as recited or incorporated in claims 8-10. Instead, Mower apparently merely relates to terminating an atrial fibrillation, after which Mower's pacing is terminated, as discussed above. Accordingly, because all elements recited or incorporated in claims 8-10 are apparently not present in Mower, Applicant respectfully submits that there is presently no *prima facie* case of anticipation of claims 8-10. Therefore, Applicant respectfully requests withdrawal of this basis of rejection of claims 8-10.

§103 Rejection of the Claims

1. Claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mower (U.S. Patent No. 6,178,351) in view of Mongeon et al. (U.S. Patent No. 5,620,468). Applicant has amended claim 3 to overcome this rejection.

Applicant cannot find in the cited portions of Mower and/or Mongeon any disclosure, teaching or suggestion of, in response to detecting termination of atrial fibrillation, invoking a suppression mode that delivers multiple pulses sequentially to the target atrium during the same atrial contraction, as presently recited or incorporated in claim 3. Instead, Mower apparently merely relates to terminating an atrial fibrillation, after which Mower's pacing is terminated, as discussed above. The Office Action merely uses Mongeon as disclosing a method of treatment of atrial fibrillation that continues treatment until the cessation of atrial fibrillation is detected. (See Office Action ¶ 17.) Therefore, Mongeon fails to cure the deficiency of Mower. In fact, Mower apparently actually teaches away from suppressing onset of atrial fibrillation by

delivering pulses because Mower expressly teaches discontinuing its stimulation after atrial fibrillation has been terminated. (See Mower at col. 9, lines 44-58.)

Accordingly, because the cited portions of Mower and/or Mongeon apparently fail to disclose, teach, or even suggest all elements presently recited or incorporated in claim 3, and because Mower actually teaches away from claim 3, Applicant respectfully submits that no *prima facie* case of obviousness presently exists with respect to claim 3. Accordingly, Applicant respectfully requests withdrawal of this basis of rejection of claim 3.

2. Claims 11-15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mower (U.S. Patent No. 6,178,351) in view of Ostroff et al. (U.S. Patent No. 6,952,610). Applicant has amended claim 11 to overcome this rejection.

Concerning claim 11:

Applicant cannot find in the cited portions of Mower and/or Ostroff any disclosure, teaching, or suggestion of delivering, in response to the cessation of atrial fibrillation, stimulation through each of the at least two electrodes, the stimulation timed to suppress the onset of atrial fibrillation. Instead, Mower apparently merely relates to terminating an atrial fibrillation, after which Mower's pacing is terminated, as discussed above. The Office Action merely uses Ostroff as disclosing using constant-current stimulus. (See Office Action ¶ 17.) Therefore, Ostroff fails to cure this deficiency of Mower. In fact, Mower apparently actually teaches away from suppressing onset of atrial fibrillation by delivering pulses because Mower expressly teaches discontinuing its stimulation after atrial fibrillation has been terminated. (See Mower at col. 9, lines 44-58.)

Accordingly, because the cited portions of Mower and/or Ostroff apparently fail to disclose, teach, or even suggest all elements presently recited or incorporated in claim 11, and because Mower actually teaches away from claim 11, Applicant respectfully submits that no *prima facie* case of obviousness presently exists with respect to claim 11. Accordingly, Applicant respectfully requests withdrawal of this basis of rejection of claim 11.

Concerning claim 12:

In addition to the reasons discussed above with respect to its base claim 11, Applicant respectfully submits that no *prima facie* case of obviousness presently exists with respect to

claim 12 for the reasons discussed above with respect to the § 102 rejection of claim 2.

Accordingly, Applicant respectfully requests withdrawal of this basis of rejection of claim 12.

Concerning claim 13:

In addition to the reasons discussed above with respect to its base claim 11, Applicant respectfully submits that no *prima facie* case of obviousness presently exists with respect to claim 13 for the reasons discussed above with respect to the § 102 rejection of claim 3.

Accordingly, Applicant respectfully requests withdrawal of this basis of rejection of claim 13.

Concerning claim 14:

In addition to the reasons discussed above with respect to its base claim 11, Applicant respectfully submits that no *prima facie* case of obviousness presently exists with respect to claim 14 for the reasons discussed above with respect to the § 102 rejection of claim 4.

Accordingly, Applicant respectfully requests withdrawal of this basis of rejection of claim 14.

Concerning claim 15:

In addition to the reasons discussed above with respect to its base claim 11, Applicant respectfully submits that no *prima facie* case of obviousness presently exists with respect to claim 15 for the reasons discussed above with respect to the § 102 rejection of claim 5.

Accordingly, Applicant respectfully requests withdrawal of this basis of rejection of claim 15.

3. Claims 16-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mower (U.S. Patent No. 6,178,351) in view of Ostroff et al. (U.S. Patent No. 6,952,610). Applicant respectfully traverses.

Concerning claim 16:

Applicant cannot find in the cited portions of Mower any disclosure, teaching, or suggestion of suppressing the “initiation” of atrial fibrillation. Instead, Mower apparently merely relates to terminating an already-existing atrial fibrillation, after which Mower’s pacing is terminated, as discussed above. The Office Action merely uses Ostroff as disclosing using constant-current stimulus. (*See* Office Action ¶ 17.) Therefore, Ostroff fails to cure this deficiency of Mower. In fact, Mower apparently actually teaches away from suppressing onset of atrial fibrillation by delivering pulses because Mower expressly teaches discontinuing its stimulation after atrial fibrillation has been terminated. (*See* Mower at col. 9, lines 44-58.)

Accordingly, because the cited portions of Mower and/or Ostroff apparently fail to disclose, teach, or even suggest all elements presently recited or incorporated in claim 16, and because Mower actually teaches away from claim 16, Applicant respectfully submits that no *prima facie* case of obviousness presently exists with respect to claim 16. Accordingly, Applicant respectfully requests withdrawal of this basis of rejection of claim 16.

Concerning claim 17:

In addition to the reasons discussed above with respect to its base claim 16, Applicant respectfully traverses for the reasons discussed above with respect to the § 102 rejection of claim 2. Accordingly, Applicant respectfully requests withdrawal of this basis of rejection of claim 17.

Concerning claim 18:

In addition to the reasons discussed above with respect to its base claim 16, Applicant respectfully traverses for the reasons discussed above with respect to the § 102 rejection of claim 3. Accordingly, Applicant respectfully requests withdrawal of this basis of rejection of claim 18.

Concerning claim 19:

In addition to the reasons discussed above with respect to its base claim 16, Applicant respectfully traverses for the reasons discussed above with respect to the § 102 rejection of claim 4. Accordingly, Applicant respectfully requests withdrawal of this basis of rejection of claim 19.

4. Claim 20 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mower (U.S. Patent No. 6,178,351). Applicant respectfully traverses.

Applicant cannot find in the cited portions of Mower any disclosure, teaching, or suggestion of forestalling “initiation” of conduction circus motions. Instead, Mower apparently merely relates to terminating an already-existing atrial fibrillation, after which Mower’s pacing is terminated, as discussed above. In fact, Mower apparently actually teaches away from suppressing onset of atrial fibrillation by delivering pulses because Mower expressly teaches discontinuing its stimulation after atrial fibrillation has been terminated. (See Mower at col. 9, lines 44-58.) Moreover, the Office Action admits that Mower does not disclose “stimulating the atrium so that the resulting contraction is completed faster than the atrium’s native contraction.” (See Office Action ¶ 25.) Even if, as asserted by the Office Action, Mower discloses that the speed of stimulation pulses can be increased, Applicant respectfully submits that Mower’s

teaching must be viewed in the context of terminating an already-existing atrial fibrillation, rather than forestalling initiation of conduction circus motions that could result in the onset of a subsequent atrial fibrillation episode.

Accordingly, because the cited portions of Mower apparently fail to disclose, teach, or even suggest all elements presently recited or incorporated in claim 20, and because Mower actually teaches away from claim 20, Applicant respectfully submits that no *prima facie* case of obviousness presently exists with respect to claim 20. Accordingly, Applicant respectfully requests withdrawal of this basis of rejection of claim 20.

5. Claims 21 and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mower (U.S. Patent No. 6,178,351) in view of Ostroff et al. (U.S. Patent No. 6,952,610).

Concerning claim 21:

Applicant respectfully traverses for the reasons discussed above with respect to the § 103 rejection of its base claim 20 and the reasons discussed above with respect to the § 102 rejection of claim 2. Accordingly, Applicant respectfully requests withdrawal of this basis of rejection of claim 21.

Concerning claim 22:

Applicant respectfully traverses for the reasons discussed above with respect to the § 103 rejection of its base claim 20 and the reasons discussed above with respect to the § 102 rejection of claim 3. Accordingly, Applicant respectfully requests withdrawal of this basis of rejection of claim 22.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 373-6951 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

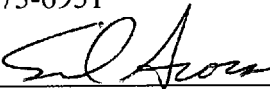
Respectfully submitted,

JAMES R. THACKER ET AL.

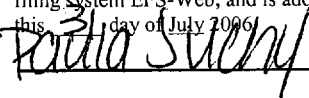
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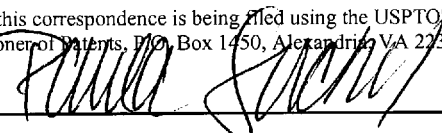
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